

Tennis Elbow: An Overview

An interview with Dr. Robert N. Hotchkiss

Robert N. Hotchkiss, MD

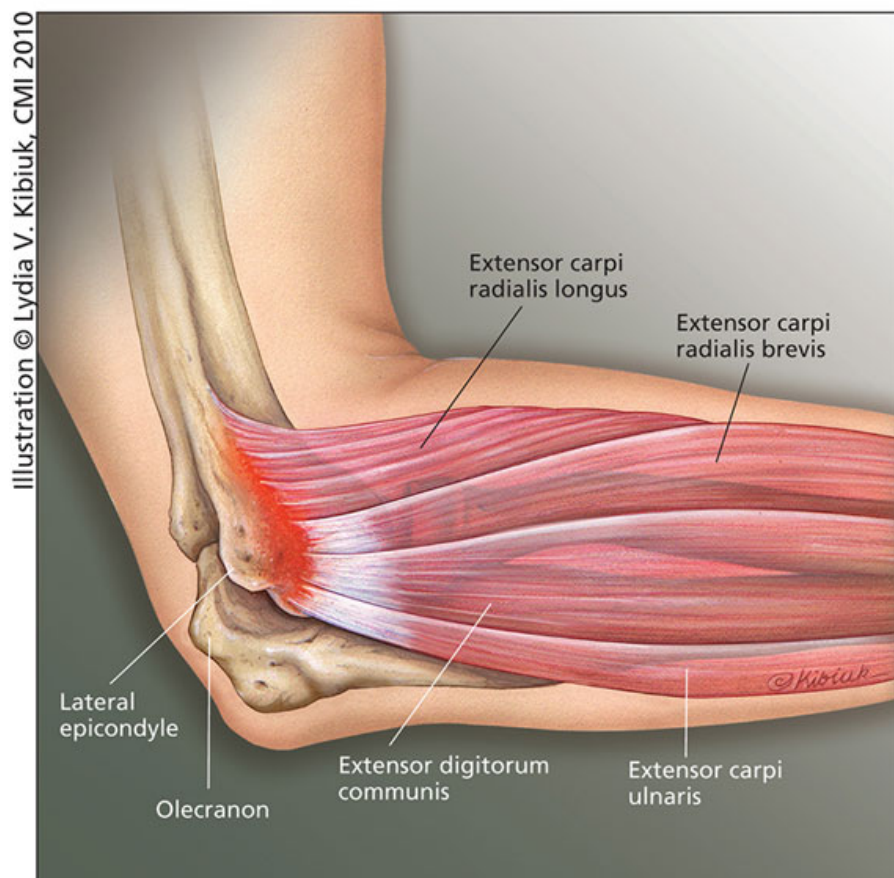
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Introduction

Tennis elbow (lateral epicondylitis) is a condition that develops when a small portion of one of the tendons that connects the muscles of the forearm to the humerus (the origin of extensor muscles at the elbow) fails and gradually pulls away from the bone. Despite the popularly used term for this condition, the vast majority of patients who have tennis elbow do not play the game. Most patients are over 40, with aging tendons that are more vulnerable to activity-provoked failure.



The origin of extensor muscles at the elbow. Illustration courtesy of *The Journal of Musculoskeletal Medicine*.

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Diagnosis

The primary symptom of tennis elbow is pain. However, the mechanism involved in the pain is not well-understood and is somewhat baffling since some experts believe that there are very few inflammatory cells at this site. Generally, patients can point out the precise site where they are experiencing pain and describe which of their actions make the pain worse. Orthopedic surgeons use physical examination and information obtained through magnetic resonance imaging (**MRI**) to confirm the diagnosis, and to rule out other conditions, such as nerve compression or a tumor. (Interestingly, some patients who are undergoing MRI for other reasons may be found to have evidence of tendon failure without any associated pain.)

Treatment

"A number of people with this condition try alternative treatments," says **Robert N. Hotchkiss, MD**, Associate Attending Orthopaedic Surgeon at the Hospital for Special Surgery (HSS.) "A wide range of remedies are reported to offer relief, including acupuncture, herbal remedies, or splinting, but it's difficult to say how successful these treatments really are. In my practice, I see patients for whom they have not been useful."

Conservative

Patients who seek traditional medical treatment begin with conservative measures. If their symptoms are not severe, the orthopaedic surgeon may advise a "wait-and-see" approach. These patients are also advised to modify their activities, restricting or eliminating those that aggravate their condition. For those who do play tennis, modifications in the way they play can be helpful—including restringing or changing rackets, getting a larger grip, or using a different backhand (the stroke that places the greatest ballistic stress across the wrist). For all patients, use of over-the-counter anti-inflammatory drugs such as ibuprofen and application of ice can also reduce pain. Physical therapy may also provide some relief by strengthening surrounding muscles. Although strengthening the wrist using weights is advocated by some therapists, this particular exercise may aggravate the patient's pain.

Some studies indicate that in most patients, pain in the outer elbow may clear up on its own over the course of a year or two. However, Dr. Hotchkiss points out, these studies don't show whether patients adapted to their condition by changing the way they used their arms or by giving up certain activities. It's also unclear whether the study populations included a significant number of patients who are disabled on a daily basis.

Patients whose symptoms persist, or who do not achieve adequate relief from these measures, may be candidates for an injection of cortisone (a potent anti-inflammatory agent). As with the mechanism that causes pain, the mechanism for pain relief provided by these injections is unclear—particularly in the absence of a significant number of inflammatory cells.

Some orthopedists have suggested that insertion of the needle breaks up some loose tissue in the area that is causing pain. Response to the injections varies with some patients experiencing a period of pain relief lasting from a few weeks to a few months, while others feel no benefit. Owing to the potential for side effects, at HSS generally no more than two injections are given unless the patient has had at least a year of pain relief.

Surgical

For patients who are truly disabled by tennis elbow (many experience difficulty with such simple daily functions as lifting a cup of coffee, writing, or shaking hands) and have not benefited from other treatment modalities, surgery may be advised. Two surgical techniques are available – open surgery and **arthroscopy**. Open surgery requires a larger incision and affords a number of options. A little chip of bone can be removed to purportedly increase blood flow into the area and thereby promote healing and reduce pain. Alternatively, a

small portion of the tendon can be released by severing its connection to the bone. This leaves most of the tendon still attached to the bone and functional so that there is virtually no loss of mechanical strength. The tendon also can be repaired by debriding, i.e., cutting away the unhealthy portion of the tendon and reattaching the healthy portion to the bone.

Arthroscopic surgery utilizes two small incisions, one on the medial side and one on the lateral side of the elbow. The surgeon uses a fiberoptic instrument that makes it possible to see into the joint through the small incisions during surgery, which involves cleaning out all of the torn-off tissue, in essence, releasing a small portion of the tendon. In general, no bone is removed, however some surgeons roughen the surface with a motorized tool to generate a more generous blood flow to that region.

At HSS, both types of surgery are performed as same-day procedures usually using a regional anesthetic technique that permits the patient to be awake and comfortable with only the arm and elbow numb. Some patients prefer to be more sedated. About 80 to 90 percent of patients report an improvement of most of their pain and impairment. We have not compared both techniques on a randomized controlled basis. The more severe the condition, the greater is the chance for improvement.

Recovery/Rehabilitation

Following surgery, patients who have arthroscopic treatment are not splinted, but simply have the elbow covered and wear a sling. They may begin gentle stretching exercises of the wrist and elbow in the immediate post-operative period as tolerated. Supervised physical therapy is initiated if the patient is failing to regain adequate motion or strength in the month following treatment.

For patients who have the open debridement, the wrist is usually splinted in extension for three to six weeks to allow healing of the repaired and reattached tendon origin. The patient then begins gentle stretching and strengthening with supervision of a physical therapist or hand therapist.

Although pain relief is usually significant, the pain of tennis elbow can recur. Surgical patients are advised to guard against any old habits that may have caused or exacerbated their condition. In the case of tennis players, the orthopaedic surgeon may suggest exercises to improve shoulder strength and foot speed before returning to the sport, as well as consultation with a tennis pro. Because tennis elbow can be bilateral—up to 20% of those Dr. Hotchkiss sees have some evidence of the condition in both arms—caution should be exercised to protect the untreated elbow.

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